DOCUMENT RESUME

ED 219 910 EC 143 191

AUTHOR Gajar, Anna Helen; Hale, Robert L.
TITLE Factor Analysis of the Quay Peterson Behavior Problem Checklist across Racially Different Exceptional Children.
PUB DATE Apr 82
NOTE 15p.; Paper presented at the Annual International Convention of the Council for Exceptional Children (60th, Houston, TX, April 11-16, 1982, Session Th-B2).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Behavior Patterns; *Behavior Problems; *Behavior Rating Scales; Black Youth; Check Lists; Classification; *Disabilities; Elementary Secondary Education; Emotional Disturbances; Factor Analysis; Learning Disabilities; Mild Mental Retardation; *Minority Groups; *Racial Factors
IDENTIFIERS *Quay Peterson Behavior Problem Checklist

ABSTRACT

The factor structure of the Quay Peterson Behavior Problem Checklist was investigated with 358 children identified for or placed in special education classes for the emotionally disturbed, learning disabled, and educable mentally retarded. Ss were selected across racial backgrounds to determine the scale's efficacy in measuring personality dimensions in racially different exceptional children. Similarity across races was found on the factors labeled in previous studies as conduct disorders, personality problem, and immaturity/inadequacy. A fourth factor, including items of laziness in school, irresponsibility, dislike for school, was found to be race specific. This factor was interpreted as resistance by black exceptional students toward the expectations within a white academic environment. (Author/SW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED219910

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

Factor Analysis of the Quay Peterson Behavior Problem Checklist Across Racially Different Exceptional Children

Anna Helen Gajar
The Pennsylvania State University

Robert L. Hale
The Pennsylvania State University

EC143191

Running head: Factor Analysis

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Anna Helen Gajar
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Paper presented at the Annual International Convention of the
Council for Exceptional Children (60th, Houston, TX, April 11-16, 1982)

Abstract

The factor structure of the Quay Peterson Behavior Problem Checklist was investigated, across racial backgrounds, in order to determine its efficacy as an instrument in measuring personality dimensions in racially different exceptional children. Similarity across races was found on factors labeled in previous studies as conduct disorder, personality problem, and immaturity inadequacy. A fourth factor including items of laziness in school, irresponsibility, dislike for school, was found to be race specific. This factor was interpreted as resistance by Black exceptional students toward the expectations within a white academic environment.

Factor Analysis of the Quay Peterson Behavior Problem Checklist Across Racially Different Exceptional Children

A current approach to classifying behavior problems among children and adolescents has been to identify statistically interrelated patterns of behavior. Kauffman (1977) and Quay and Werry (1972) discuss the "dimensional approach" to classification. Three dimensions identified, by these researchers, include "conduct disorder," "personality problem," and "immaturity inadequacy." These three patterns of behavior have been exhibited in samples of normal and exceptional children (Gajar, 1980; Grieger, & Richards, 1976; McCarthy, & Paraskevopoulos, 1969). The differential validity, however, of the three dimensions of behavior when used with individuals of different cultures has revealed varying results. Factor analysis of the Quay Peterson Behavior Problem Checklist among Australian adolescents revealed four factors: conduct disorder, autism, neuroticism, and subcultural delinquency (Marriott, Law, & Perry, 1977). A study of the checklist among Oglala Sioux adolescents revealed that the factors of personality problem and immaturity-inadequacy did not replicate across cultures (O'Donnell, & Cress, 1975).

Public Law 94-142, the Education for All Handicapped Children Act, mandates the assessment of exceptional children through nonbiased techniques. While considerable research evidence has accumulated concerning cognitive and achievement test bias (Jensen, 1980), very little research has been directed toward the investigation of bias in children's behavior assessment devices. The Quay Peterson Behavior Problem Checklist rates 55 behaviors derived from factor analysis of ratings on deviant and nondeviant subjects. Subjects used in the development of the checklist have been predominantly White Americans. Validity of the instrument when used with Black children has not been determined. The

purpose of the present study was to investigate the factor structure of the Quay Peterson Behavior Problem Checklist across racial backgrounds in order to determine its efficacy as an instrument in measuring personality dimensions in racially different exceptional children.

Method

Subjects. The subjects included 358 children randomly selected from a larger pool of children identified for or placed in special education classes in a southwestern Virginia city school system. Subjects selected for the study fell into three categories; those who were classified by the city school psychologists as emotionally disturbed (ED); those classifed as learning disabled (LD); and those classified as educable mentally retarded (EMR). Pertinent statistics can be found in Table 1.

Insert Table 1 about here

Procedure. The measures included items from three statistically interrelated patterns of disturbance (conduct disorder, immaturity-inadequacy, personality problem) as identified by Quay and Werry (1972). A checklist of behaviors was extracted from Grieger and Richards (1976) factor study of the widely used Behavior Problem Checklist devised by Quay and Peterson (1979). Ratings on the checklist were made by the investigator from data available in each subjects's psychological folder. Since case history data available in the folder was used by the school psychologist for identification and placement purposes, it was decided to use his procedure in rating each subject on the three dimensions. Case history ratings of behaviors has been conducted by previous researchers (Hewitt, & Jenkins, 1946; Peterson, 1961; Quay, 1966; Quay, & Parsons, 1971).

The following steps were performed to determine individual ratings on each of the behavioral dimensions.

First, a behavior checklist was composed of 15 behaviors identified with conduct disorder, 12 behaviors identified with personality problem, and 7 behaviors identified with immaturity-inadequacy. The behaviors selected were those with factor loadings of .50 and above for combined regular and special education samples reported by Grieger and Richards (1976).

Second, "0" was circled on the checklist if the behavior was not mentioned in the folder. If the behavior was mentioned on any of the numerous forms filled out by pertinent adults (teacher, parent, doctor, nurse, social worker, home school counselor), "1" was circled.

Third, to check the reliability of the affective ratings a Pearson Correlation was conducted on the first 50 cases which were rated independently by the investigator and a student observer. Correlations were as follows: (a) r = .98 ($p < .001$) for conduct disorder, (b) r = .97 ($p < .001$) for personality problem, (c) r = .97 ($p < .001$) for immaturity-inadequacy. T-tests performed on the two raters' scores and each factor were significant (factor one, $t = 3.27$, $p < .002$; factor two, $t = 3.67$, $p. < .001$; factor three, $t = 4.96$, $p < .001$). Since cross-observer reliability was extremely high, student observer ratings were discontinued.

Analysis. Two separate factor analyses were conducted; one for White children across handicapping categories and one for Black children across handicapping categories. For each group a correlation matrix and a principle factors solution was obtained using selected options of the SPSS computer manual (Nie, Hull, Jenkins, Streinbrenner, & Bent, 1975). Factoring for each group was terminated when the eigenvalues became less than one. The resulting

factors were rotated by the Varimax criterion of simple structure (Kaiser, 1958). Coefficients of congruence and salient similarity indices were computed to determine the extent of structural similarity of the data for Black and White handicapped populations (Harman, 1967; Cattell, 1968).

Results

For the White sample, three factors accounted for 81.4 percent of the common variance. For the Black sample, four factors accounted for 78.8 percent of the common variance. The rotated factor loadings for the two groups is shown in Table 2.

Insert Table 2 about here

Factor one accounted for 48.6 percent of the variance for the White sample and 42.8 percent of the variance for the Black sample. This factor included items corresponding to the conduct disorder dimension reported by previous researchers. Factor two accounted for 20.9 percent of the variance for the White sample and 16.0 percent of the variance for the Black sample. Items included in this factor, for the White sample, corresponded to the personality problem dimension reported by Quay and Peterson. Items for the Black sample corresponded to the immaturity-inadequacy dimension. Factor three accounted for 11.9 percent of the variance for the White sample and 12.7 percent of the variance for the Black sample. The items on this factor for the White sample corresponded to the immaturity-inadequacy dimension and to the personality problem dimension for the Black sample. Factor four accounting for 7.4 percent of the variance for Black children was race specific. Items included in this factor for the Black sample corresponded to selected items within the immaturity-inadequacy dimension.

Coefficients of factorial similarity (r_c) revealed the following congruence between the patterns generated from ratings of Black and White children Φ 1 = .97; Φ 2 for White children and Φ 3 for Black children = .84; Φ 2 for the Black sample and Φ 3 for the White sample = .94; Φ 3 for the White sample and Φ 4 for the Black sample = .47.

Since r_c values of approximately .90 or higher are required to indicate factorial similarity, it can be initially inferred that the three factors for the White sample have similar counterparts within the Black sample. However, the use and proper interpretation of r_c values assumes that the variances are equal across groups and/or across variables. Violations of the assumptions regarding the covariance matrix may distort the distribution of r_c. To control for this possibility, r_c was supplemented by Cattell's salient variable similarity index (S), a nonparametric measure of factorial similarity (Cattell, Balcar, Horn, Nisselroade, 1969). If S is also significant, then there is sufficient evidence of factorial invariance. The following results, significant at the .05 level were obtained: Φ 1 for Black and White children s_{11} = .88; Φ 2 for White children and Φ 3 for Black children, s_{23} = .75; Φ 3 for White subjects and Φ 2 for Black subjects s_{32} = .77 (see Table 2).

Discussion

The purpose of this study was to investigate the classification of behaviors among exceptional children across racial backgrounds. The factor structure of the Quay Peterson checklist was compared with factor structures generated from ratings, extracted from psychological folders, of Black and White special education children. Factor one which accounted for approximately 40 - 50 percent of the variance for both races showed similarity across races for exceptional children. Items on this factor corresponded to the items found

within the conduct disorder dimension of the Quay Peterson checklist. This finding extends previous research which found a conduct disorder factor similarity on patterns generated by regular and special education children (Grieger, & Richards, 1976), and on factors generated by Oglala Sioux adolescents and White American children (O'Donnell, & Cress, 1975).

Factor two for White children, showed similarity to the personality problem dimension; for Black children, this factor showed similarity to the immaturity-inadequacy dimension. The reverse finding emerged for factor three.

Previous factor analyses of the Quay Peterson Behavior Problem Checklist with Australian adolescents (Marriott, Law, & Perry, 1977) and with Oglala Sioux adolescents (O'Donnell, & Cress, 1975) revealed that factors labeled personality problem and immaturity inadequacy did not replicate across culturally different children. In contrast, the results of this study revealed a similarity across races on the factors with high loadings within the immaturity inadequacy dimension; Φ 3 for Whites and Φ 2 for Blacks within the personality problem dimension; Φ 2 for Whites and Φ 3 for Blacks. The factors included most of the items within either the immaturity inadequacy dimension or the personality problem dimension as reported by Quay and Peterson (1979). This finding lends support to the use of the Checklist with racially different exceptional children.

Factor four for the Black sample was race specific and similar to a factor labeled negativistic withdrawal reported by O'Donnell, & Cress for Oglala Sioux adolescents (1975). According to O'Donnell and Cress, the salient items in this factor (laziness in school, dislike for school, irresponsibility) reflect a "passive resistance toward schools which reflect White society's emphasis on academic achievement.

In summary, the present study showed similarity across Black and White exceptional children on factors similar to the conduct disorder, personality problem, and immaturity inadequacy dimensions reported by previous researchers. A fourth factor including items of irresponsibility and dislike for school was found to be race specific (Black) and somewhat similar to one reported for Oglala Sioux adolescents. This factor has been interpreted as a resistance toward expectations within a white academic environment.

References

Cattell, R. B., Balcar, K. R., Horn, J. L., & Nisselroade, I. R. Factor matching procedures; An improvement of the S index, with tables. Educational and Psychological Measurement, 1969, 29, 781-792.

Gajar, A. H. Characteristics across exceptional categories: EMR, LD, and ED. The Journal of Special Education, 1980, 14, 165-173.

Grieger, R. M., & Richards, H. S. Prevalence and structure of behavior symptoms among children in special education and regular classroom settings. Journal of School Psychology, 1976, 14(1), 27-38.

Harman, H. Modern factor analysis (2nd ed.). Chicago: University of Chicago Press, 1967.

Hewitt, L. E., & Jenkins, R. L. Fundamental patterns of maladjustment: The dynamics of their origin. Springfield: State of Illinois, 1946.

Jensen, A. R. Bias in mental tests. New York: The Free Press, 1980.

Kaiser, H. F. The Varimax criterion for analytic rotation in factor analysis. Psychometrika, 1958, 23, 187-200.

Kauffman, J. M. Characteristics of children's behavior disorders. Columbus, Ohio: Charles E. Merrill, 1977.

McCarthy, J. M., & Paraskevopoulos, J. Behavior patterns of learning disabled, emotionally disturbed, and average children. Exceptional Children, 1969, 36, 69-74.

Marriott, M. J., Law, H. G., & Perry, D. G. Factor structure of the Behavior Problem Checklist when used with Australian adolescents. Australian Journal of Psychology, 1977, 29(2), 131-136.

Nie, N. H., Hull, H. C., Jenkins, J. G., Steinbrenner, K., & Bent, D. H. Statistical package for the social sciences (2nd ed.). New York: McGraw-Hill, 1975.

O'Donnell, J. P., & Cress, J. N. Dimensions of behavior problems among Oglala Sioux adolescents. Journal of Abnormal Child Psychology, 1975, 3(3), 163-169.

Peterson, D. R. Behavior problems of middle childhood. Journal of Consulting Psychology, 1961, 25, 205-209.

Quay, H. C. Personality patterns in preadolescent delinquent boys. Educational and Psychological Measurement, 1966, 16, 99-110.

Quay, H. C., & Parsons, C. B. The differential behavioral classification of the juvenile offender (2nd ed.). Washington: U. S. Bureau of Prisons, 1971.

Table 1

Number of Subjects in Each

Category of Sex, Race, by Diagnositc Classification

Classification		Race		Sex	
		Black	White	Male	Female
EMR	116	61	55	84	32
LD	131	32	99	104	27
ED	111	22	89	89	22
*Total	358	115	243	277	81

*Mean CA = 11.4

S.D. 2.9

Table 2

Rotated Factor Loading for White and Black

Samples of Exceptional Children

Factor	1		2		3		4
Variable	WHT	BLK	WHT	BLK	WHT	BLK	BLACK
Disobedience	.73	.85					
Impertinence	.72	.70					
Negativism	.68	.75					
Fighting	.68	.61					
Irritability	.62	.43					
Disruptiveness	.75	.74					
Boisterousness	.62	.43					
Temper Tantrums	.62	.39					
Uncooperativeness	.64	.71					
Distructiveness	.63	.55					
Profane Language	.60	.40					
Attention-Seeking Behavior	.63	.66					
Jealousy	.60	.64					
Hyperactivity	.39	.30			.42		
Dislike for School	.44	.35					.51
Social Withdrawal			.68				
Self-Consciousness			.57			.49	
Feelings of Inferiority			.64			.70	
Anxiety			.39				
Lack of Self-Confidence			.64			.75	
Fixed Expression							
Shyness, Bashfulness			.68			.46	
Preoccupation			.53				
Alootness, Social Reserve						.40	
Depression, Easily Flustered			.31				
Reticence, Secretiveness			.56				
Hypersensitivity			.32				
Short Attention Span				.83	.79		
Distractibility				.91	.85		
Inattentiveness				.54	.49		.42
Restlessness				.53	.42		
Excessive Daydreaming							.40
Laziness in School							.75
Irresponsibility					.36		.57

Note: For comparison purposes, all loadings less than 3.0 omitted